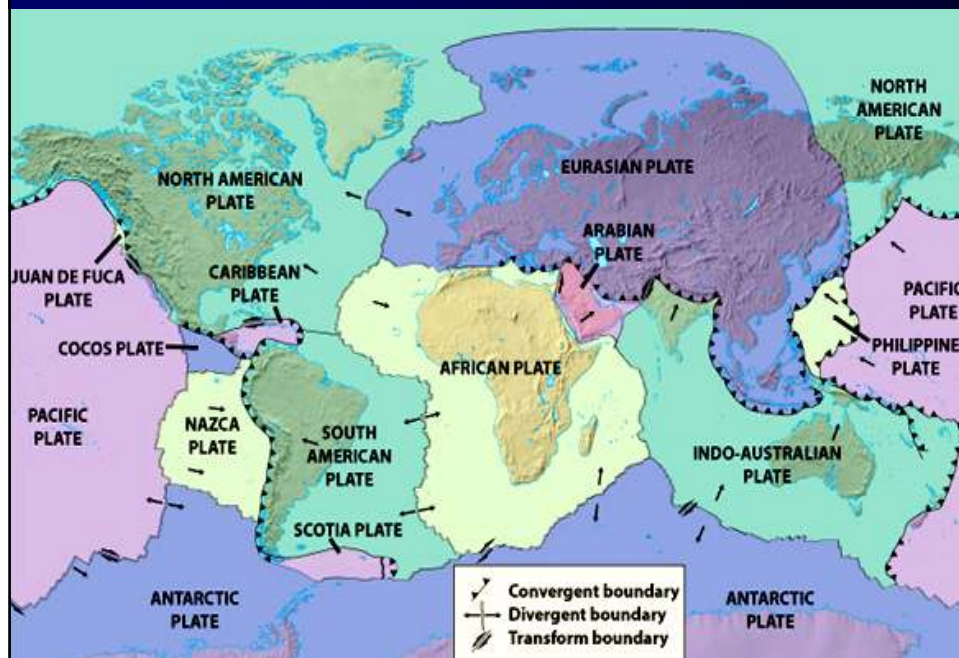


What does this all mean?



DIVIDE - COLLIDE - SLIDE

There are three types of motion.

Plates can divide apart and move away from each other.

Plates can collide together and move closer.

Plates can slide past and along each other.

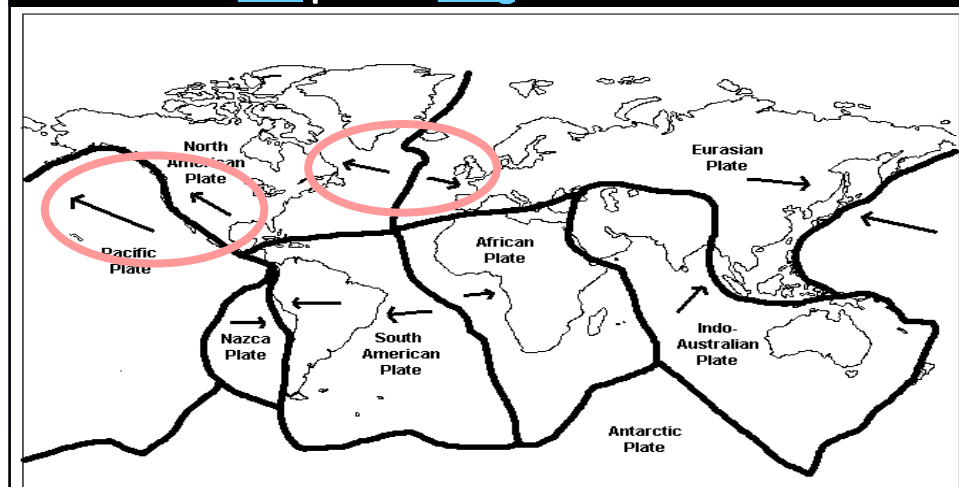


Plate Motion: Divide

Divergent Boundary: When two plates divide or separate.

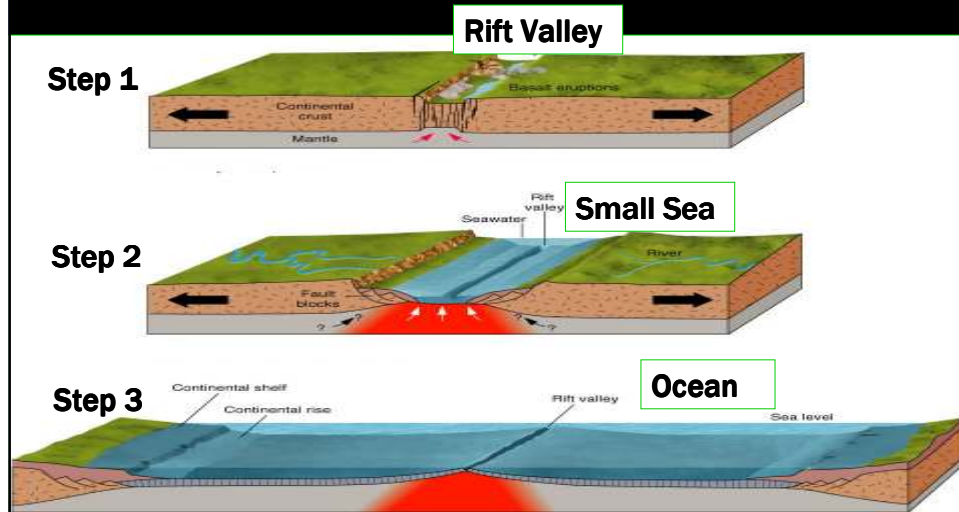


Plate Motion: Slide

Transform / Strike-Slip Boundary

- When two plates slide or slip past one another.

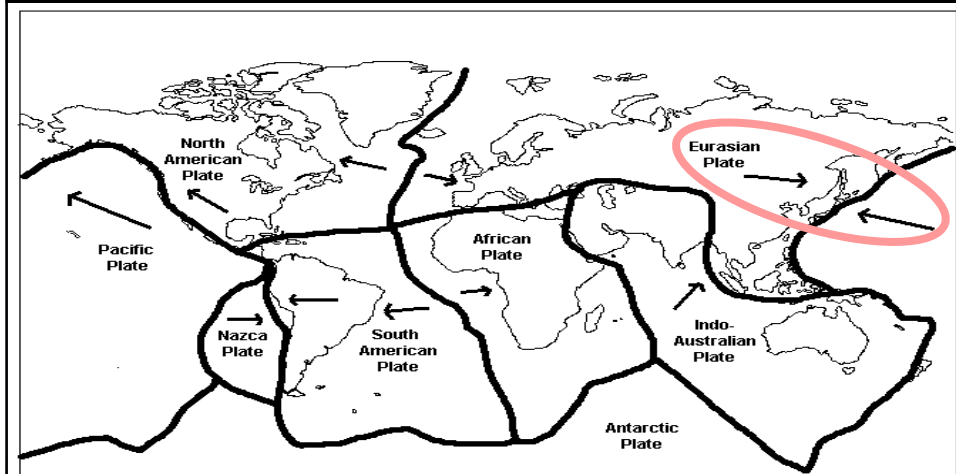
- Example: San Andreas Fault



Convergent Boundaries

A convergent plate boundary is a location where two plates are colliding and hitting one another.

Plate collisions occur slowly (millions of years).



Convergent Boundaries

There are three possible scenarios that can occur at a convergent plate boundary:

1. Oceanic-Continental Convergence

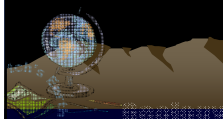
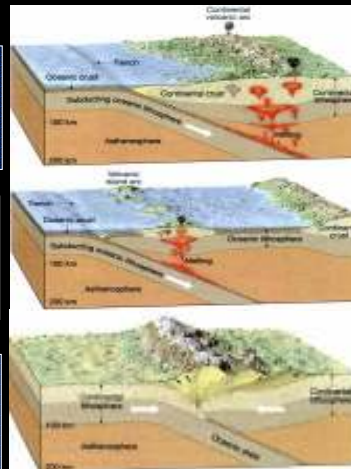
Ocean plate collides with a Continental plate.

2. Oceanic-Oceanic Convergence

Ocean plate collides with an Ocean plate.

3. Continental - Continental Convergence

Continental plate collides with a Continental plate.



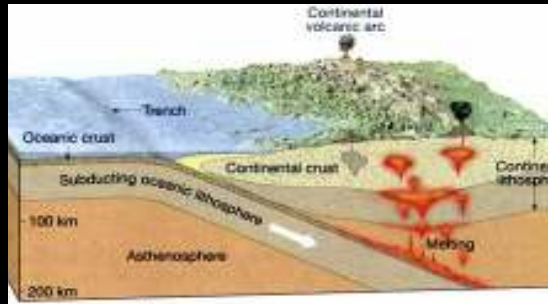
Convergent Boundaries: Ocean - Continental

Oceanic-Continental Convergence

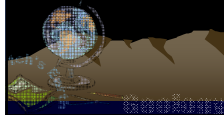
1. An ocean and continental plate collide.

2. The continental crust is made of less dense materials as thus floats over the ocean crust.

3. The more dense ocean crust sinks, or subducts under the continental crust and into the asthenosphere.



4. The location where this occurs is called a subduction zone.



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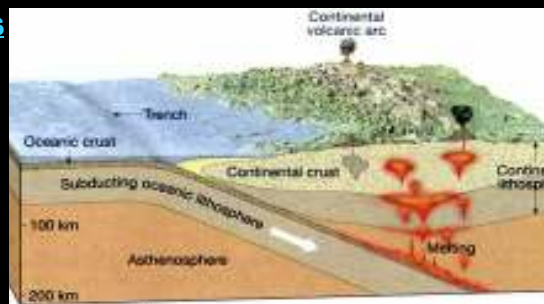
Convergent Boundaries: Ocean - Continental

Oceanic-Continental Convergence

5. The subducting ocean plate creates a V-shaped trench as it sinks under the continental plate.

6. As the ocean crust enters the hot asthenosphere, water from the plate is released causing mantle rocks to start to melt.

The water acts like salt does to ice, causing the rocks to melt at a lower temperature than they normally would.



7. The melted magma slowly rises through the mantle and crust, where it continues to melt more rock.



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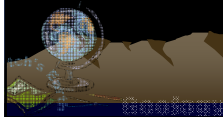
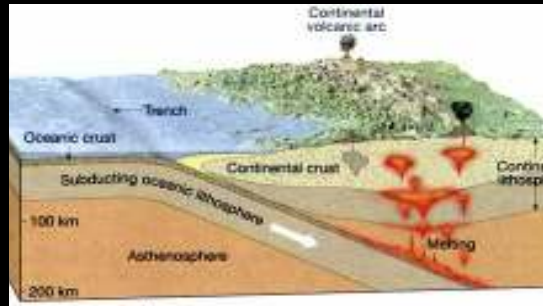
Convergent Boundaries: Ocean - Continental

Oceanic-Continental Convergence

8. Eventually the magma will rise to the surface in a volcanic eruption. The lava cools forming rocky volcanic mountains.

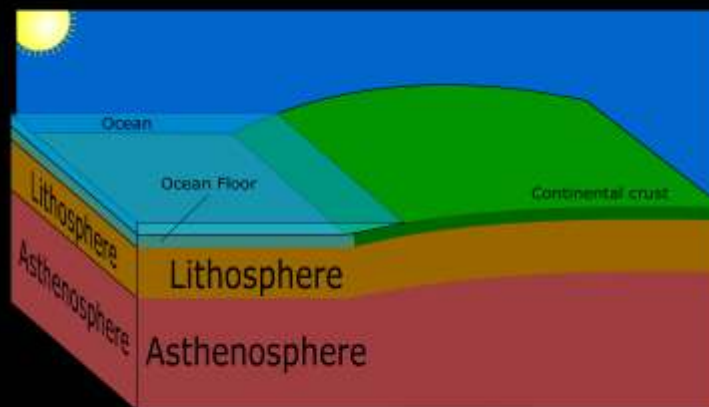
9. Volcanic activity is created along the entire subduction zone (along the entire length of the subducting plate).

10. This forms a continental-volcanic arc.

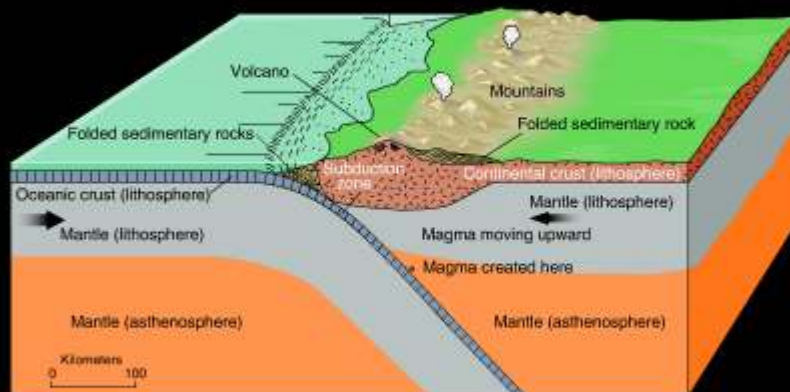


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Convergent Boundaries: Ocean - Continental



Convergent Boundaries: Ocean - Continental



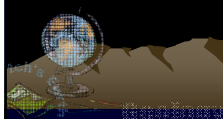
Convergent Boundaries: Ocean - Continental

Oceanic-Continental Convergence

Examples: [Andes Volcanic Mountains](#)

[Cascades Mountain Range \(Mt. Rainier, Shasta, & St Helens\)](#)

[Formerly Sierra Nevada \(Yosemite National Park\) NOT ACTIVE](#)



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Convergent Boundaries: Ocean - Continental



Convergent Boundaries: Ocean - Continental

Cascades Mountain Range (Mt. Rainier, Shasta, & St Helens)



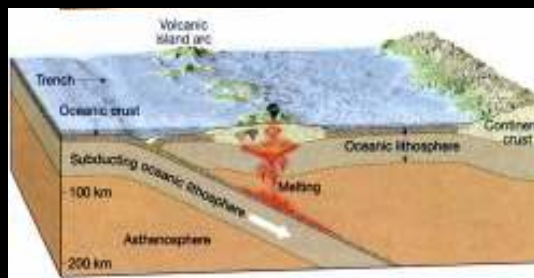
Convergent Boundaries: Ocean - Continental



Convergent Boundaries: Ocean - Ocean

Oceanic-Oceanic Convergence

1. An ocean and another ocean plate collide.
2. The ocean plate that is more dense will be the one to subduct into the asthenosphere.
3. Typically the older the rock on the plate, the more dense it will be.
4. Once the plate enters the asthenosphere, it begins to melt, giving off water, thus causing even more rock to melt in the mantle and crust.

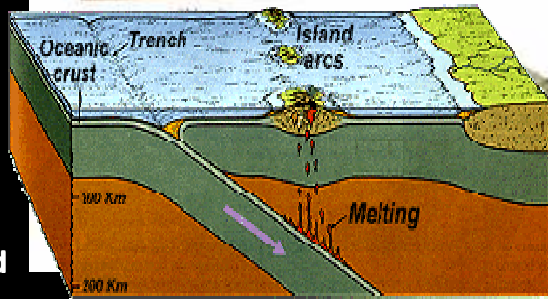


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Convergent Boundaries: Ocean - Ocean

Oceanic-Oceanic Convergence

5. The magma produced will buoyantly rise and cool forming rocky volcanic mountains under the ocean.
6. As the volcanic mountains grow, they will eventually emerge from the ocean as a volcanic island.
7. These islands are called volcanic-island arcs.

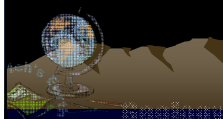


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Convergent Boundaries: Ocean - Ocean

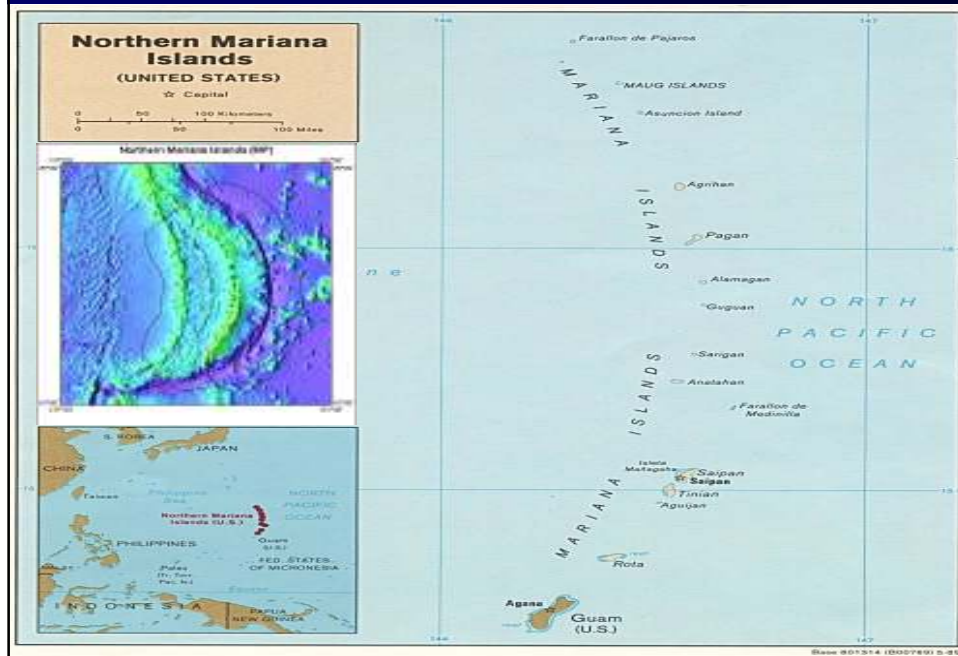
Oceanic-Oceanic Convergence

Examples: Aleutian Islands
Mariana Islands



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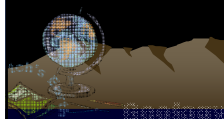
Convergent Boundaries: Ocean - Ocean



Convergent Boundaries: Continental - Continental

Continental-Continental Convergence

Examples: [Himalaya Mountains in Asia](#)



Convergent Boundaries: Continental - Continental

Continental – Continental Convergence

1. Two continental plates collide with one another.

2. Neither one of the continental plates will subduct because they are both low in density.

3. The result is a collision where the crust is compressed and deformed as both plates are forced upward, forming a mountain range.



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Convergent Boundaries: Continental - Continental



Convergent Boundaries: Ocean - Continental

